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Dr. David Okrent
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Dear Dr. Okrent,

Thank you for sending me the WASH-1400 reports and comments, which of course I must take some time to digest before returning.

I am writing now in response to reading your proposal for renewal, to the NSF, and certainly wish you well!

I wonder if I might ask you for another copy of ENG-7478? (I lent the first one out and it may be a while before I can get it back).

I am happy to see further criticism of the concept of the discounted loss of earnings! In that connection I wonder if you have seen Kenneth Arrow's discussion in a recent publication of the NRC: "The Ethics of Health Care", which also bears directly on this question.

Arrow's name of course also brings to mind the analysis of insurance which you mentioned on page 19. I used to be more optimistic that the kind of third party risk assessment and trade-off with premiums would enable insurance to be used as a method of regulating risk. However, I wonder what the historical record shows with respect to the efficacy of this kind of brokerage in helping to improve the performance of individual and institutional behavior with respect to the risks covered. I suppose that fire insurance must have had some beneficial effect (omitting for the moment the induced arson). But I am told that the level of technical input that most insurance companies have applied is of a relatively low order and is hardly at all applied to the amelioration of risks. I would say that most people are often willing to pay probabilistically excessive premiums for insurance simply to reduce the cost of planning for a wide variety of contingencies, and to avoid market failures when sudden emergent contingencies arise.

With respect to item e) on page 19, I can suggest subjects of interest under the heading of "stored lethality" although you may have reason not to wish to undertake them here. One of the more obvious sources is the potential "civilianization" of lethal weaponry originally developed for military purposes, e.g. plastic explosives and bazookas as already materialized examples. I have been quite exercised personally about binary chemical weapons as a serious potential threat along these lines. In

distinction to nuclear power, and to some extent nuclear weaponry, no one, as far as I can find, has the job of anticipating these spill-overs in the cost effectiveness analysis of proposed military systems.

The recent conference at Asilomar (see Science for March 14th) was of course a constructive effort to address a somewhat related topic. Perhaps there would be some merit in using exactly that example which ought to be dealt with more precisely from the standpoint of policy analysis than I fear was possible at the conference or in the medium of the press.

Along a somewhat related vein would be other concerns about epidemics and public health hazards, for example the extreme vulnerability of our water supplies to sabotage and to some extent to accidental initiation of epidemics. Our system of international quarantine has similar loopholes as documented for example in a recent book on Lassa fever: "Fever" by John G. Fuller.

On page 24 D2, a topic related to some that I had mentioned just a while ago, you might wish to consult Ted Gurr, or to scan a recent collection "Violence as Politics" edited by Herbert Hirsch and David C. Perry, Harper and Row. I am sure you are acquainted with the flurry of recent writings on the problem of civilian proliferation of nuclear weapons capability which is a somewhat parallel question. The works on command and control problems, for example by Larus, might also give some suggestions for expertise. And particularly perhaps you would find it profitable to consult with Brian Jenkins at Rand who is a political scientist who has been recently very much interested in "stateless war". I personally view risks in these dimensions as among the largest that our society faces - short of all out war - and it would be foolish not to give them requisite attention.

Sincerely yours,

Joshua Lederberg
Professor of Genetics

JL/rr